

Course Specifications

From the academic year 2016-2017 up to and including the

Introduction to Maritime Technology (E055045)

Course size (nominal values; actual values may depend on programme)

Credits 6.0 Study time 180 h Contact hrs 60.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 1)	English	lecture	30.0 h
		seminar: coached	30.0 h
		exercises	
B (semester 1)	Dutch	seminar: coached	30.0 h
		exercises	
		guided self-study	30.0 h

Lecturers in academic year 2018-2019

Vantorre, Marc	TW15	lecturer-in-charge
Delefortrie, Guillaume	TW15	co-lecturer

Offered in the following programmes in 2018-2019

	crdts	offering
Bridging Programme Master of Science in Electromechanical Engineering (main subject Maritime Engineering)	6	A
Master of Science in Electromechanical Engineering (main subject Control Engineering and Automation)	6	B
Master of Science in Electromechanical Engineering (main subject Electrical Power Engineering)	6	B
Master of Science in Electromechanical Engineering (main subject Maritime Engineering)	6	A
Master of Science in Electromechanical Engineering (main subject Maritime Engineering)	6	B
Master of Science in Electromechanical Engineering (main subject Mechanical Construction)	6	B
Master of Science in Electromechanical Engineering (main subject Mechanical Energy Engineering)	6	B

Teaching languages

Dutch, English

Keywords

Ships, shipping, ship stability, ship propulsion, ship motions

Position of the course

Introduction to the maritime world, providing basic information on characteristics, construction, stability, propulsion and motions of ships. Thorough knowledge concerning hydrostatics and stability of floating structures and ships.

Contents

- Shipping as part of the logistics chain.: The role of shipowners, shipyards and classification societies.
- General description of the ship as a means of transport or as an implement.: Function and short description of some ship types: cargo ships, dredgers, tugs,...
- Ship structures: materials and construction systems.
- Hydrostatics and stability of floating structures: background; influence of free liquid surfaces and of hanging loads, applications (e.g. sheer-legs pontoon); IMO regulation (load line, tonnage, stability).
- Propulsion of ships (introduction): ship resistance; propulsion methods; propulsion machinery.
- Ship maneuvering by means of rudders and thrusters (introduction): fundamentals;

- standard maneuvers; maneuvering simulation; maneuvering in restricted waters.
- Motions of ships in waves (introduction): linear wave theory; fundamentals; motions in navigation channels; forces on and motions of moored ships.

Initial competences

Specific elements of the mathematics and physics courses from the bachelor's.

Final competences

- 1 Gain insight into hydrostatics and stability of floating structures.
- 2 Get acquainted with professional terminology concerning external characteristics, structure and primary members of maritime constructions.
- 3 Analyse the stability of floating structures, including the effects of free fluid surfaces, hanging weights, movable cargo.
- 4 Assess ship stability with respect to international conventions.
- 5 Distinguish the most important physical causes of a ship's resistance. Reason out the most important parameters on which a ship's resistance depends. Define and recognise the most usual technologies used for a ship's propulsion.
- 6 Reason out the manoeuvring behaviour of a ship. Distinguish the most important characteristics of a ship's steering equipment (rudder). Define the main techniques used to determine and evaluate a ship's manoeuvring behaviour.
- 7 Get acquainted with the specific hydrodynamic behaviour of a ship in shallow and confined navigation areas.
- 8 Give an explanation for the dynamic behaviour of a floating structure in waves. Be able to use professional terminology with respect to the behaviour of floating structures in waves.
- 9 Describe the main players in the shipping world.
- 10 Analyse specific problems concerning hydrostatics and stability of ships and other floating structures.
- 11 Execute hydrostatic calculations and stability calculations for a ship by means of specialised software.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Guided self-study, lecture, seminar: coached exercises

Learning materials and price

Syllabus in English, price 16 EUR.

References

- Scheepskennis (K. van Dokkum, Dokmar, Delfzijl 2001)

Course content-related study coaching

Evaluation methods

end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Open book examination, oral examination

Examination methods in case of periodic evaluation during the second examination period

Open book examination, oral examination

Examination methods in case of permanent evaluation

Report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

During examination period: oral closed-book exam, written preparation; written open-book exam. During semester: graded project reports.

Calculation of the examination mark

Oral closed-book exam during examination period: 50%
Written open-book exam during examination period: 25%

Project reports during semester: 25%
A student can only pass if he/she has participated to the three parts.